Figure 1: Human POSH Coding Sequence (SEQ ID NO:1) (part 1)

ATGGATGAATCAGCCTTGTTGGATCTTTTGGAGTGTCCGGTGTGTCTAGAGCGCCTTGATGCTTCTGCGA
AGGTCTTGCCTTGCCAGCATACGTTTTGCAAGCGATGTTTGCTGGGGATCGTAGGTTCTCGAAATGAACT
CAGATGTCCCGAGTGCAGGACTCTTGTTGGCTCGGGTGTCGAGGAGCTTCCCAGTAACATCTTGCTGGTC
AGACTTCTGGATGGCATCAAACAGAGGCCTTGGAAACCTGGTCCTGGTGGGGGAAGTGGGACCAACTGCA
CAAATGCATTAAGGTCTCAGAGCAGCACTGTGGCTAATTGTAGCTCAAAAGATCTGCAGAGCTCCCAGGG
CGGACAGCAGCCTCGGGTGCAATCCTGGAGCCCCCCAGTGAGGGGTATACCTCAGTTACCATGTGCCAAA
GCGTTATACAACTATGAAGGAAAAGAGCCTGGAGACCTTAAATTCAGCAAAGGCGACATCATCATTTTGC
GAAGACAAGTGGATGAAAATTGGTACCATGGGGAAGTCAATGGAATCCATGGCTTTTTCCCCACCAACTT
TGTGCAGATTATTAAACCGTTACCTCAGCCCCCACCTCAGTGCAAAGCACTTTATGACTTTGAAGTGAAA
GACAAGGAAGCAGACAAAGATTGCCTTCCATTTGCAAAGGATGATGTTCTGACTGTGATCCGAAGAGTGG
ATGAAAACTGGGCTGAAGGAATGCTGGCAGACAAAATAGGAATATTTCCAATTTCATATGTTGAGTTTAA
CTCGGCTGCTAAGCAGCTGATAGAATGGGATAAGCCTCCTGTGCCAGGAGTTGATGCTGGAGAATGTTCC
TCGGCAGCAGCCCAGAGCAGCACTGCCCCAAAGCACTCCGACACCAAGAAGAACACCAAAAAGCGGCACT
CCTTCACTTCCCTCACTATGGCCAACAAGTCCTCCCAGGCATCCCAGAACCGCCACTCCATGGAGATCAG
CCCCCCTGTCCTCATCAGCTCCAGCAACCCCACTGCTGCTGCACGGATCAGCGAGCTGTCTGGGCTCTCC
TGCAGTGCCCCTTCTCAGGTTCATATAAGTACCACCGGGTTAATTGTGACCCCGCCCCCAAGCAGCCCAG
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TCCTCTTCCACCACCCCCTCTCCTGGCTGCCACTGTCCTTGCCTCCACACCACCAGGCGCCACCGCCGCC
GCTGCTGCTGCTGGAATGGGACCGAGGCCCATGGCAGGATCCACTGACCAGATTGCACATTTACGGCCGC
AGACTCGCCCCAGTGTGTATGTTGCTATATATCCATACACTCCTCGGAAAGAGGATGAACTAGAGCTGAG
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AGCAAGATAGGGGTTTTCCCTGGCAATTATGTGGCACCAGTCACAAGGGCGGTGACAAATGCTTCCCAAG
CTAAAGTCCCTATGTCTACAGCTGGCCAGACAAGTCGGGGAGTGACCATGGTCAGTCCTTCCACGGCAGG
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ACCAGGCCCGCAATGCTGTGAGGACAGTTGCAGCGCACAACCAGGAACGCCCCACGGCAGCAGTGACACC
CATCCAGGTACAGAATGCCGCCGGCCTCAGCCCTGCATCTGTGGGCCTGTCCCATCACTCGCTGGCCTCC
CCACAACCTGCGCCTCTGATGCCAGGCTCAGCCACGCACACTGCTGCCATCAGTATCAGTCGAGCCAGTG
CCCCTCTGGCCTGTGCAGCAGCTGCTCCACTGACTTCCCCAAGCATCACCAGTGCTTCTCTGGAGGCTGA
GCCCAGTGGCCGGATAGTGACCGTTCTCCCTGGACTCCCCACATCTCCTGACAGTGCTTCATCAGCTTGT
GGGAACAGTTCAGCAACCAAACCAGACAAGGATAGCAAAAAAGAAAAAAAGGGTTTGTTGAAGTTGCTTT
CTGGCGCCTCCACTAAACGGAAGCCCCGCGTGTCTCCTCCAGCATCGCCCACCCTAGAAGTGGAGCTGGG
CAGTGCAGAGCTTCCTCTCCAGGGAGCGGTGGGGCCCGAACTGCCACCAGGAGGTGGCCATGGCAGGGCA
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CTCCCTGGGTCCTGTCTTGAATGAGTCTAGACCTGTCGTTTGTGAAAGGCACAGGGTGGTGGTTTCCTAT
CCTCCTCAGAGTGAGGCAGAACTTGAACTTAAAGAAGGAGATATTGTGTTTGTTCATAAAAAACGAGAGG
ATGGCTGGTTCAAAGGCACATTACAACGTAATGGGAAAACTGGCCTTTTCCCAGGAAGCTTTGTGGAAAA
CATATGA

Figure 2: Human POSH Amino Acid Sequence (SEQ ID NO:2) (part 2)

MDESALLDLLECPVCLERLDASAKVLPCQHTFCKRCLLGIVGSRNELRCPECRTLVGSGVEELPSNILLV
RLLDGIKQRPWKPGPGGGSGTNCTNALRSQSSTVANCSSKDLQSSQGGQQPRVQSWSPPVRGIPQLPCAK
ALYNYEGKEPGDLKFSKGDIIILRRQVDENWYHGEVNGIHGFFPTNFVQIIKPLPQPPPQCKALYDFEVK
DKEADKDCLPFAKDDVLTVIRRVDENWAEGMLADKIGIFPISYVEFNSAAKQLIEWDKPPVPGVDAGECS
SAAAQSSTAPKHSDTKKNTKKRHSFTSLTMANKSSQASQNRHSMEISPPVLISSSNPTAAARISELSGLS
CSAPSQVHISTTGLIVTPPPSSPVTTGPSFTFPSDVPYQAALGTLNPPLPPPPLLAATVLASTPPGATAA
AAAAGMGPRPMAGSTDQIAHLRPQTRPSVYVAIYPYTPRKEDELELRKGEMFLVFERCQDGWFKGTSMHT
SKIGVFPGNYVAPVTRAVTNASQAKVPMSTAGQTSRGVTMVSPSTAGGPAQKLQGNGVAGSPSVVPAAVV
SAAHIQTSPQAKVLLHMTGQMTVNQARNAVRTVAAHNQERPTAAVTPIQVQNAAGLSPASVGLSHHSLAS
PQPAPLMPGSATHTAAISISRASAPLACAAAAPLTSPSITSASLEAEPSGRIVTVLPGLPTSPDSASSAC
GNSSATKPDKDSKKEKKGLLKLLSGASTKRKPRVSPPASPTLEVELGSAELPLQGAVGPELPPGGGHGRA
GSCPVDGDGPVTTAVAGAALAQDAFHRKASSLDSAVPIAPPPRQACSSLGPVLNESRPVVCERHRVVVSY
PPQSEAELELKEGDIVFVHKKREDGWFKGTLQRNGKTGLFPGSFVENI

Figure 3: Human POSH cDNA Sequence (SEQ ID NO:3)

CTGAGAGACACTGCGAGCGGCGAGCGCGGTGGGGCCGCATCTGCATCAGCCGCCGCAGCCGCTGCGGGGC
CGCGAACAAAGAGGAGGAGCCGAGGCGCGAGAGCAAAGTCTGAAATGGATGTTACATGAGTCATTTTAAG
GGATGCACACAACTATGAACATTTCTGAAGATTTTTTCTCAGTAAAGTAGATAAAGATGGATGAATCAGC
CTTGTTGGATCTTTTGGAGTGTCCGGTGTGTCTAGAGCGCCTTGATGCTTCTGCGAAGGTCTTGCCTTGC
CAGCATACGTTTTGCAAGCGATGTTTGCTGGGGATCGTAGGTTCTCGAAATGAACTCAGATGTCCCGAGT
GCAGGACTCTTGTTGGCTCGGGTGTCGAGGAGCTTCCCAGTAACATCTTGCTGGTCAGACTTCTGGATGG
CATCAAACAGAGGCCTTGGAAACCTGGTCCTGGTGGGGGAAGTGGGACCAACTGCACAAATGCATTAAGG
TCTCAGAGCAGCACTGTGGCTAATTGTAGCTCAAAAGATCTGCAGAGCTCCCAGGGCGGACAGCAGCCTC
GGGTGCAATCCTGGAGCCCCCCAGTGAGGGGTATACCTCAGTTACCATGTGCCAAAGCGTTATACAACTA
TGAAGGAAAAGAGCCTGGAGACCTTAAATTCAGCAAAGGCGACATCATCATTTTGCGAAGACAAGTGGAT
GAAAATTGGTACCATGGGGAAGTCAATGGAATCCATGGCTTTTTCCCCACCAACTTTGTGCAGATTATTA
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CAAAGATTGCCTTCCATTTGCAAAGGATGATGTTCTGACTGTGATCCGAAGAGTGGATGAAAACTGGGCT
GAAGGAATGCTGGCAGACAAAATAGGAATATTTCCAATTTCATATGTTGAGTTTAACTCGGCTGCTAAGC
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TCAGCTCCAGCAACCCCACTGCTGCTGCACGGATCAGCGAGCTGTCTGGGCTCTCCTGCAGTGCCCCTTC
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CCCCTCTCCTGGCTGCCACTGTCCTTGCCTCCACACCACCAGGCGCCACCGCCGCCGCTGCTGCTGCTGG
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TTTCCCTGGCAATTATGTGGCACCAGTCACAAGGGCGGTGACAAATGCTTCCCAAGCTAAAGTCCCTATG
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TCTGATGCCAGGCTCAGCCACGCACACTGCTGCCATCAGTATCAGTCGAGCCAGTGCCCCTCTGGCCTGT
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ATTGTTTACAAGGCTTAACTAATTTATTTGCTTTTTTAAACTTGAACTTTTCGTATAATAGATACGTTCT
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AATGTATTTAGAAATATATTTAGTTTTATAGCAGAAGCAGCTCAATTGTTTGGTTGGAAAGTAGGGGAAA
TTGAAGTTGTAGTCACTGTCTGAGAATGGCTATGAAGCGTCATTTCACATTTTACCCCAACTGACCTGCA
TGCCCAGGACACAAGTAAAACATTTGTGAGATAGTGGTGGTAAGTGATGCACTCGTGTTAAGTCAAAGGC
TATAAGAAACACTGTGAAAAGTTCATATTCATCCATTGTGATTCTTTCCCCACGTCTTGCATGTATTACT
GGATTCCCACAGTAATATAGACTGTGCATGGTGTGTATATTTCATTGCGATTTCCTGTTAAGATGAGTTT
GTACTCAGAATTGACCAATTCAGGAGGTGTAAAAATAAACAGTGTTCTCTTCTCTACCCCAAAGCCACTA

-to be continued

9399577_1

Figure 3: Human POSH cDNA Sequence (SEQ ID NO:3)

CTGACCAAGGTCTCTTCAGTGCACTCGCTCCCTCTCTGGCTAAGGCATGCATTAGCCACTACACAAGTCA
TTAGTGAAAGTGGTCTTTTATGTCCTCCCAGCAGACAGACATCAAGGATGAGTTAACCAGGAGACTACTC
CTGTGACTGTGGAGCTCTGGAAGGCTTGGTGGGAGTGAATTTGCCCACACCTTACAATTGTGGCAGGATC
CAGAAGAGCCTGTCTTTTTATATCCATTCCTTGATGTCATTGGCCTCTCCCACCGATTTCATTACGGTGC
CACGCAGTCATGGATCTGGGTAGTCCGGAAAACAAAAGGAGGGAAGACAGCCTGGTAATGAATAAGATCC
TTACCACAGTTTTCTCATGGGAAATACATAATAAACCCTTTCATCTTTTTTTTTTTCCTTTAAGAATTAA
AACTGGGAAATAGAAACATGAACTGAAAAGTCTTGCAATGACAAGAGGTTTCATGGTCTTAAAAAGATAC
TTTATATGGTTGAAGATGAAATCATTCCTAAATTAACCTTTTTTTTAAAAAAAAACAATGTATATTATGT
TCCTGTGTGTTGAATTTAAAAAAAAAAAATACTTTACTTGGATATTCATGTAATATATAAAGGTTTGGTG
AAATGAACTTTAGTTAGGAAAAAGCTGGCATCAGCTTTCATCTGTGTAAGTTGACACCAATGTGTCATAA
TATTCTTTATTTTGGGAAATTAGTGTATTTTATAAAAATTTTAAAAAGAAAAAAGACTACTACAGGTTAA
GATAATTTTTTTACCTGTCTTTTCTCCATATTTTAAGCTATGTGATTGAAGTACCTCTGTTCATAGTTTC
CTGGTATAAAGTTGGTTAAAATTTCATCTGTTAATAGATCATTAGGTAATATAATGTATGGGTTTTCTAT
TGGTTTTTTGCAGACAGTAGAGGGAGATTTTGTAACAAGGGCTTGTTACACAGTGATATGGTAATGATAA
AATTGCAATTTATCACTCCTTTTCATGTTAATAATTTGAGGACTGGATAAAAGGTTTCAAGATTAAAATT
TGATGTTCAAACCTTTGT

Figure 4: 5' cDNA fragment of human POSH (public gi:10432611; SEQ ID NO:4)

ctgagagacactgcgagcggcgagcgcggtggggccgcatctgcatcagccgccgcagccgctgcggggc
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accaaaccagacaaggatagc

Figure 5: N terminus protein fragment of hPOSH (public gi:10432612; SEQ ID NO:5)

MDESALLDLLECPVCLERLDASAKVLPCQHTFCKRCLLGIVGSRNELRCPECRTLVGSGVEELPSNILLV
RLLDGIKQRPWKPGPGGGSGTNCTNALRSQSSTVANCSSKDLQSSQGGQQPRVQSWSPPVRGIPQLPCAK
ALYNYEGKEPGDLKFSKGDIIILRRQVDENWYHGEVNGIHGFFPTNFVQIIKPLPQPPPQCKALYDFEVK
DKEADKDCLPFAKDDVLTVIRRVDENWAEGMLADKIGIFPISYVEFNSAAKQLIEWDKPPVPGVDAGECS
SAAAQSSTAPKHSDTKKNTKKRHSFTSLTMANKSSQASQNRHSMEISPPVLISSSNPTAAARISELSGLS
CSAPSQVHISTTGLIVTPPPSSPVTTGPSFTFPSDVPYQAALGTLNPPLPPPPLLAATVLASTPPGATAA
AAAAGMGPRPMAGSTDQIAHLRPQTRPSVYVAIYPYTPRKEDELELRKGEMFLVFERCQDGWFKGTSMHT
SKIGVFPGNYVAPVTRAVTNASQAKVPMSTAGQTSRGVTMVSPSTAGGPAQKLQGNGVAGSPSVVPAAVV
SAAHIQTSPQAKVLLHMTGQMTVNQARNAVRTVAAHNQERPTAAVTPIQVQNAAGLSPASVGLSHHSLAS
PQPAPLMPGSATHTAAISISRASAPLACAAAAPLTSPSITSASLEAEPSGRIVTVLPGLPTSPDSASSAC
GNSSATKPDKDS

Figure 6: 3' mRNA fragment of hPOSH (public gi:7959248; SEQ ID NO:6)

atttcatatgttgagtttaactcggctgctaagcagctgatagaatgggataagcctcctgtgccaggag
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aattttaaaaagaaaaaagactactacaggttaagataatttttttacctgtctttttctccatattttaa
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gatcattaggtaatataatgtatgggttttctattggttttttgcagacagtagagggagattttgtaac
aagggcttgttacacagtgatatggtaatgataaaattgcaatttatcactccttttcatgttaataatt
tgaggactggataaaaggtttcaagattaaaatttgatgttcaaacctttgt

Figure 7: C terminus protein fragment of hPOSH (public gi:7959249; SEQ ID NO:7)

ISYVEFNSAAKQLIEWDKPPVPGVDAGECSSAAAQSSTAPKHSDTKKNTKKRHSFTSLTMANKSSQASQN
RHSMEISPPVLISSSNPTAAARISELSGLSCSAPSQVHISTTGLIVTPPPSSPVTTGPSFTFPSDVPYQA
ALGTLNPPLPPPPLLAATVLASTPPGATAAAAAAGMGPRPMAGSTDQIAHLRPQTRPSVYVAIYPYTPRK
EDELELRKGEMFLVFERCQDGWFKGTSMHTSKIGVFPGNYVAPVTRAVTNASQAKVPMSTAGQTSRGVTM
VSPSTAGGPAQKLQGNGVAGSPSVVPAAVVSAAHIQTSPQAKVLLHMTGQMTVNQARNAVRTVAAHNQER
PTAAVTPIQVQNAAGLSPASVGLSHHSLASPQPAPLMPGSATHTAAISISRASAPLACAAAAPLTSPSIT
SASLEAEPSGRIVTVLPGLPTSPDSASSACGNSSATKPDKDSKKEKKGLLKLLSGASTKRKPRVSPPASP
TLEVELGSAELPLQGAVGPELPPGGGHGRAGSCPVDGDGPVTTAVAGAALAQDAFHRKASSLDSAVPIAP
PPRQACSSLGPVLNESRPVVCERHRVVVSYPPQSEAELELKEGDIVFVHKKREDGWFKGTLQRNGKTGLF
PGSFVENI

Figure 8: Human POSH full mRNA, Annotated Sequence (part 1)

---- - gi|10432611|dbj|AK021429.1|AK021429 Homo sapiens cDNA FLJ11367 fis, clone HEMBA1000303, highly similar to Mus musculus Plenty of SH3s (POSH) mRNA

---- - gi|7959248|dbj|AB040927.1|AB040927 Homo sapiens mRNA for KIAA1494 protein, partial cds

---- - Both hPOSH and KIAA1495

---- - Ring Domain

---- - SH3 Domian

---- - start codon and stop codon of predicted ORF

CTGAGAGACACTGCGAGCGGCGAGCGCGGTGGGGCCGCATCTGCATCAGCCGCCGCAGCCGCTGCGGGGC
CGCGAACAAAGAGGAGGAGCCGAGGCGCGAGAGCAAAGTCTGAAATGGATGTTACATGAGTCATTTTAAG
GGATGCACACAACTATGAACATTTCTGAAGATTTTTTTCTCAGTAAAGTAGATAAAGATGGATGAATCAGC
CTTGTTGGATCTTTTGGAG
GCAGGACTCTTGTTGGCTCGGGTGTCGAGGAGCTTCCCAGTAACATCTTGCTGGTCAGACTTCTGGATGG
CATCAAACAGAGGCCTTGGAAACCTGGTCCTGGTGGGGGAAGTGGGACCAACTGCACAAATGCATTAAGG
TCTCAGAGCAGCACTGTGGCTAATTGTAGCTCAAAAGATCTGCAGAGCTCCCAGGGCGGACAGCAGCCTC
GGGTGCAATCCTGGAGCCCCCCAGTGAGGGGTATACCTCAGTTA
AACCGTTACCTCAGCCCCCA
AGCTGATAGAATGGGATAAGCCTCCTGTGCCAGGAGTTGATGCTGGAGAATGTTCCTCGGCAGCAGCCCA
GAGCAGCACTGCCCCAAAGCACTCCGACACCAAGAAGAACACCAAAAAGCGGCACTCCTTCACTTCCCTC
ACTATGGCCAACAAGTCCTCCCAGGCATCCCAGAACCGCCACTCCATGGAGATCAGCCCCCCTGTCCTCA
TCAGCTCCAGCAACCCCACTGCTGCTGCACGGATCAGCGAGCTGTCTGGGCTCTCCTGCAGTGCCCCTTC
TCAGGTTCATATAAGTACCACCGGGTTAATTGTGACCCCGCCCCCAAGCAGCCCAGTGACAACTGGCCCC
TCGTTTACTTTCCCATCAGATGTTCCCTACCAAGCTGCCCTTGGAACTTTGAATCCTCCTCTTCCACCAC
GCCCTCTCCTGGCTGCCACTGTCCTTGCCTCCACACCACCAGGCGCCACCGCCGCCGCTGCTGCTGCTGG
AATGGGACCGAGGCCCATGGCAGGATCCACTGACCAGATTGCACATTTACGGCCGCAGACTCGCCCC
ACAAGGGCGGTGACAAATGCTTCCCAAGCTAAAGTCCCTATG
TCTACAGCTGGCCAGACAAGTCGGGGAGTGACCATGGTCAGTCCTTCCACGGCAGGAGGGCCTGCCCAGA
AGCTCCAGGGAAATGGCGTGGCTGGGAGTCCCAGTGTTGTCCCCGCAGCTGTGGTATCAGCAGCTCACAT
CCAGACAAGTCCTCAGGCTAAGGTCTTGTTGCACATGACGGGGCAAATGACAGTCAACCAGGCCCGCAAT
GCTGTGAGGACAGTTGCAGCGCACAACCAGGAACGCCCCACGGCAGCAGTGACACCCATCCAGGTACAGA
ATGCCGCCGGCCTCAGCCCTGCATCTGTGGGCCTGTCCCATCACTCGCTGGCCTCCCCACAACCTGCGCC
TCTGATGCCAGGCTCAGCCACGCACACTGCTGCCATCAGTATCAGTCGAGCCAGTGCCCCTCTGGCCTGT
GCAGCAGCTGCTCCACTGACTTCCCCAAGCATCACCAGTGCTTCTCTGGAGGCTGAGCCCAGTGGCCGGA
TAGTGACCGTTCTCCCTGGACTCCCCACATCTCCTGACAGTGCTTCATCAGCTTGTGGGAACAGTTCAGC
AACCAAACCAGACAAGGATAGCAAAAAAGAAAAAAAGGGTTTGTTGAAGTTGCTTTCTGGCGCCTCCACT
AAACGGAAGCCCCGCGTGTCTCCTCCAGCATCGCCCACCCTAGAAGTGGAGCTGGGCAGTGCAGAGCTTC
CTCTCCAGGGAGCGGTGGGGCCCGAACTGCCACCAGGAGGTGGCCATGGCAGGGCAGGCTCCTGCCCTGT
GGACGGGGACGGACCGGTCACGACTGCAGTGGCAGGAGCAGCCCTGGCCCAGGATGCTTTTCATAGGAAG
GCAAGTTCCCTGGACTCCGCAGTTCCCATCGCTCCACCTCCTCGCCAGGCCTGTTCCTCCCTGGGTCCTG
TCTTGAATGAGTCTAGACCTGTCGTTTGT
GACACTGAAGAAGCTTAAAATCACTTCACACAACAAAGTAGCACAAAGCAGTTTAACAGAAAGAGCACAT

-to be continued
9399577_1

Figure 8: Human POSH full mRNA, Annotated Sequence (part 2)

TTGTGGACTTCCAGATGGTCAGGAGATGAGCAAAGGATTGGTATGTGACTCTGATGCCCCAGCACAGTTA
CCCCAGCGAGCAGAGTGAAGAAGATGTTTGTGTGGGTTTTGTTAGTCTGGATTCGGATGTATAAGGTGTG
CCTTGTACTGTCTGATTTACTACACAGAGAAACTTTTTTTTTTTTTTAAGATATATGACTAAAATGGACA
ATTGTTTACAAGGCTTAACTAATTTATTTGCTTTTTTAAACTTGAACTTTTCGTATAATAGATACGTTCT
TTGGATTATGATTTTAAGAAATTATTAATTTATGAAATGATAGGTAAGGAGAAGCTGGATTATCTCCTGT
TGAGAGCAAGAGATTCGTTTTGACATAGAGTGAATGCATTTTCCCCTCTCCTCCTCCCTGCTACCATTAT
ATTTTGGGGTTATGTTTTGCTTCTTTAAGATAGAAATCCCAGTTCTCTAATTTGGTTTTCTTCTTTGGGA
AACCAAACATACAAATGAATCAGTATCAATTAGGGCCTGGGGTAGAGAGACAGAAACTTGAGAGAAGAGA
AGTTAGTGATTCCCTCTCTTTCTAGTTTGGTAGGAATCACCCTGAAGACCTAGTCCTCAATTTAATTGTG
TGGGTTTTTAATTTTCCTAGAATGAAGTGACTGAAACAATGAGAAAGAATACAGCACAACCCTTGAACAA
AATGTATTTAGAAATATATTTAGTTTTATAGCAGAAGCAGCTCAATTGTTTGGTTGGAAAGTAGGGGAAA
TTGAAGTTGTAGTCACTGTCTGAGAATGGCTATGAAGCGTCATTTCACATTTTACCCCAACTGACCTGCA
TGCCCAGGACACAAGTAAAACATTTGTGAGATAGTGGTGGTAAGTGATGCACTCGTGTTAAGTCAAAGGC
TATAAGAAACACTGTGAAAAGTTCATATTCATCCATTGTGATTCTTTCCCCACGTCTTGCATGTATTACT
GGATTCCCACAGTAATATAGACTGTGCATGGTGTGTATATTTCATTGCGATTTCCTGTTAAGATGAGTTT
GTACTCAGAATTGACCAATTCAGGAGGTGTAAAAATAAACAGTGTTCTCTTCTCTACCCCAAAGCCACTA
CTGACCAAGGTCTCTTCAGTGCACTCGCTCCCTCTCTGGCTAAGGCATGCATTAGCCACTACACAAGTCA
TTAGTGAAAGTGGTCTTTTATGTCCTCCCAGCAGACAGACATCAAGGATGAGTTAACCAGGAGACTACTC
CTGTGACTGTGGAGCTCTGGAAGGCTTGGTGGGAGTGAATTTGCCCACACCTTACAATTGTGGCAGGATC
CAGAAGAGCCTGTCTTTTTATATCCATTCCTTGATGTCATTGGCCTCTCCCACCGATTTCATTACGGTGC
CACGCAGTCATGGATCTGGGTAGTCCGGAAAACAAAAGGAGGGAAGACAGCCTGGTAATGAATAAGATCC
TTACCACAGTTTTCTCATGGGAAATACATAATAAACCCTTTCATCTTTTTTTTTTTCCTTTAAGAATTAA
AACTGGGAAATAGAAACATGAACTGAAAAGTCTTGCAATGACAAGAGGTTTCATGGTCTTAAAAAGATAC
TTTATATGGTTGAAGATGAAATCATTCCTAAATTAACCTTTTTTTTTAAAAAAAAACAATGTATATTATGT
TCCTGTGTGTTGAATTTAAAAAAAAAAAAATACTTTACTTGGATATTCATGTAATATATAAAGGTTTGGTG
AAATGAACTTTAGTTAGGAAAAAGCTGGCATCAGCTTTCATCTGTGTAAGTTGACACCAATGTGTCATAA
TATTCTTTATTTTGGGAAATTAGTGTATTTTATAAAAATTTTAAAAAGAAAAAAGACTACTACAGGTTAA
GATAATTTTTTTACCTGTCTTTTCTCCATATTTTAAGCTATGTGATTGAAGTACCTCTGTTCATAGTTTC
CTGGTATAAAGTTGGTTAAAATTTCATCTGTTAATAGATCATTAGGTAATATAATGTATGGGTTTTCTAT
TGGTTTTTTGCAGACAGTAGAGGGAGATTTTGTAACAAGGGCTTGTTACACAGTGATATGGTAATGATAA
AATTGCAATTTATCACTCCTTTTCATGTTAATAATTTGAGGACTGGATAAAAGGTTTCAAGATTAAAATT
TGATGTTCAAACCTTTGT

Figure 9: Domain Analysis of Human POSH

| Domain Name | begin | end | E-value |
|---|---|---|---|
| RING | 12 | 52 | 1.06e-08 |
| SH3 | 137 | 192 | 2.76e-19 |
| SH3 | 199 | 258 | 4.84e-15 |
| low complexity | 366 | 384 | - |
| low complexity | 390 | 434 | - |
| SH3 | 448 | 505 | 2.40e-19 |
| low complexity | 547 | 563 | - |
| low complexity | 652 | 668 | - |
| low complexity | 705 | 729 | - |
| SH3 | 832 | 888 | 1.47e-14 |

Figure 10: Diagram of Human POSH Nucleic Acids

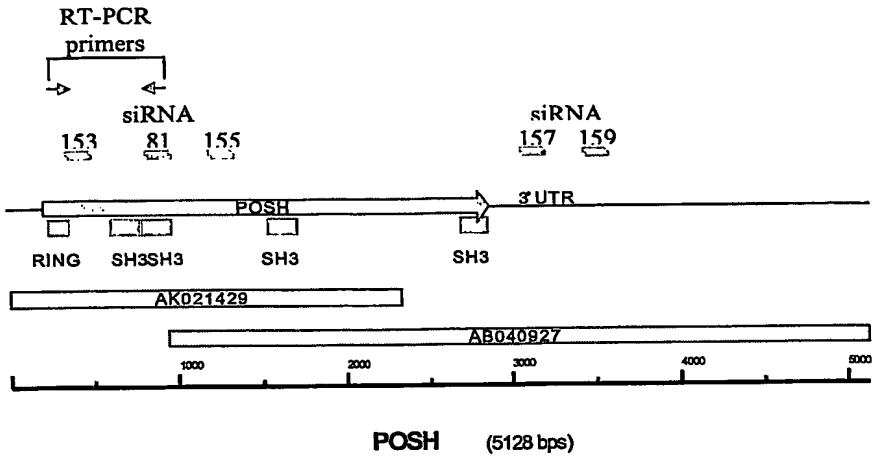

Figure 11: Reduction in Full Length POSH mRNA by siRNA Duplexes

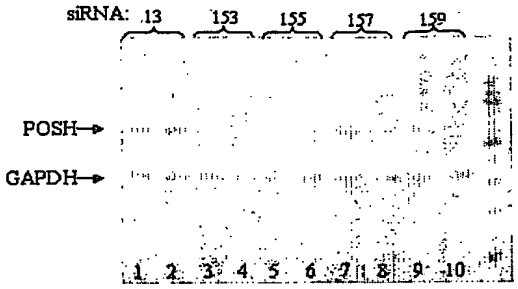

Figure 12: POSH Affects Release of VLP from Cells

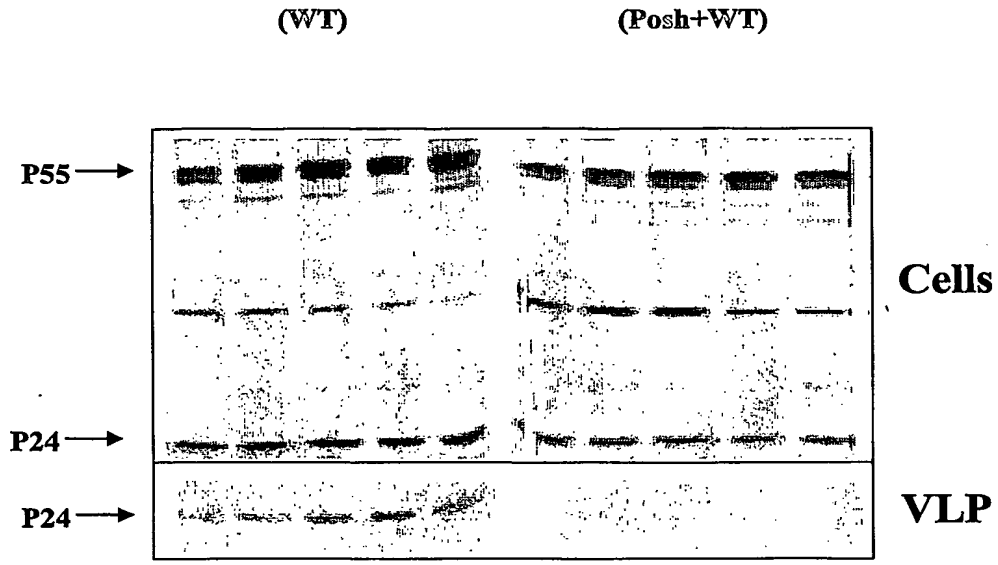

Figure 13: Release of VLP from Cells at Steady State

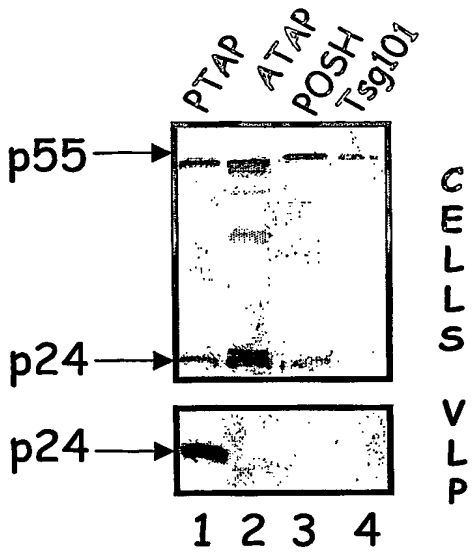

Figure 14: Mouse POSH mRNA sequence (public gi:10946921; SEQ ID NO: 8)

GGGCAGCGGGCTCGGCGGGGCTGCATCTACCAGCGCTGCGGGGCCGCGAACAAAGGCGAGCAGCGGAGGC
GCGAGAGCAAAGTCTGAAATGGATGTTACATGAATCACTTTAAGGGCTGCGCACAACTATGAACGTTCTG
AAGCCGTTTTCTCACTAAAGTCACTCAAGATGGATGAGTCTGCCTTGTTGGACCTTCTGGAGTGCCCTGT
GTGTCTAGAACGCCTGGATGCTTCCGCAAAGGTCTTACCCTGCCAGCATACCTTTTGCAAACGCTGTTTG
CTGGGGATTGTGGGTTCCCGGAATGAACTCAGATGTCCCGAATGCCGGACTCTTGTTGGCTCTGGGGTCG
ACGAGCTCCCCAGTAACATCCTACTGGTCAGACTTCTGGATGGCATCAAGCAGAGGCCTTGGAAACCCGG
CCCTGGTGGGGGCGGCGGGACCACCTGCACAAACACATTAAGGGCGCAGGGCAGCACTGTGGTTAATTGT
GGCTCGAAAGATCTGCAGAGCTCCCAGTGTGGACAGCAGCCTCGGGTGCAAGCCTGGAGCCCCCCAGTGA
GGGGAATACCTCAGTTACCGTGTGCCAAAGCATTATATAACTACGAAGGAAAAGAGCCCGGAGACCTTAA
GTTCAGCAAAGGCGACACCATCATTCTGCGCCGACAGGTGGATGAGAATTGGTACCACGGGGAAGTCAGC
GGGGTCCACGGCTTTTTCCCCACTAACTTCGTGCAGATCATCAAACCTTTACCTCAGCCCCCGCCTCAGT
GCAAAGCACTTTACGACTTTGAAGTGAAAGACAAGGAAGCTGACAAAGATTGCCTTCCCTTCGCAAAGGA
CGACGTACTGACCGTGATCCGCAGAGTGGATGAAAACTGGGCTGAAGGAATGCTGGCAGATAAAATAGGA
ATATTTCCAATTTCATACGTGGAGTTTAACTCAGCTGCCAAGCAGCTGATAGAGTGGGATAAGCCTCCCG
TGCCAGGAGTGGACACGGCAGAATGCCCCTCAGCGACGGCGCAGAGCACCTCTGCCTCAAAGCACCCCGA
CACCAAGAAGAACACCAGGAAGCGACACTCCTTCACCTCCCTCACCATGGCCAACAAGTCTTCCCAGGGG
TCCCAGAACCGCCACTCCATGGAGATCAGCCCTCCTGTGCTCATCAGTTCCAGCAACCCCACAGCCGCAG
CCCGCATCAGCGAACTGTCCGGGCTCTCCTGCAGCGCCCCGTCTCAGGTCCATATAAGCACCACTGGGTT
AATTGTGACCCCACCCCCTAGCAGCCCGGTGACAACTGGCCCTGCGTTCACGTTCCCTTCAGATGTCCCC
TACCAAGCTGCCCTTGGAAGTATGAATCCTCCACTTCCCCCACCCCCTCTCCTGGCGGCCACCGTACTCG
CCTCCACCCCGTCAGGCGCTACTGCTGCTGTTGCTGCTGCTGCCGCCGCCGCCGCTGCTGGAATGGG
ACCCAGGCCTGTGATGGGGTCCTCTGAACAGATTGCACATTTACGGCCTCAGACTCGTCCCAGTGTATAT
GTTGCTATATATCCGTACACTCCCCGGAAGGAAGACGAACTGGAGCTGAGGAAAGGGGAGATGTTTTTGG
TGTTTGAGCGTTGCCAGGACGGCTGGTACAAAGGGACATCGATGCATACCAGCAAGATAGGCGTTTTCCC
TGGCAACTATGTGGCGCCCGTCACAAGGGCGGTGACGAATGCCTCCCAAGCTAAAGTCTCTATGTCTACT
GCGGGTCAGGCAAGTCGCGGGGTGACCATGGTCAGCCCTTCCACTGCAGGAGGACCTACACAGAAGCCCC
AAGGAAACGGCGTGGCCGGAAATCCCAGCGTCGTCCCCACGGCTGTGGTGTCAGCAGCTCATATCCAGAC
AAGTCCTCAGGCTAAGGTCCTGCTGCACATGTCTGGGCAGATGACAGTCAATCAGGCCCGCAATGCTGTG
AGGACAGTTGCAGCACATAGCCAGGAACGCCCCACAGCAGCAGTGACTCCCATCCAGGTCCAGAATGCCG
CCTGCCTTGGTCCTGCATCCGTGGGCCTGCCCCATCATTCTCTGGCCTCCCAACCTCTGCCTCCAATGGC
GGGTCCTGCTGCCCACGGTGCTGCCGTCAGCATCAGTCGAACCAATGCCCCCATGGCCTGCGCTGCAGGG
GCTTCTCTGGCCTCCCCAAATATGACCAGTGCCATGTTGGAGACAGAGCCCAGTGGTCGCACAGTGACCA
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AGACAAGGACAGTAAGAAAGAAAAAAAGGGCCTACTGAAGCTGCTTTCTGGTGCCTCCACCAAACGCAAG
CCCCGAGTCTCCCCTCCAGCATCACCTACCCTGGATGTGGAGCTGGGTGCTGGGGAGGCTCCCTTGCAGG
GAGCAGTAGGTCCTGAGCTGCCGCTAGGGGGCAGCCACGGCAGAGTGGGGTCATGCCCCACAGATGGTGA
TGGTCCAGTGGCCGCTGGAACAGCAGCCCTAGCCCAGGATGCCTTCCACCGCAAGACAAGCTCCCTGGAC
TCCGCAGTGCCCATTGCTCCACCACCTCGCCAGGCCTGCTCCTCCCTGGGCCCAGTCATGAATGAGGCCC
GGCCTGTTGTTTGTGAAAGGCACAGGGTGGTGGTTTCCTACCCTCCTCAGAGTGAGGCCGAACTTGAACT
CAAGGAAGGAGATATTGTGTTTGTTCATAAGAAACGAGAGGACGGCTGGTTCAAAGGCACGTTACAGAGG
AATGGGAAGACTGGCCTTTTCCCAGGGAGCTTTGTGGAAAACATCTGAGAAGACGGGACACGGAGAAAGC
TTATCATCACACCACGTGTGACTAAAGAGCACAAAGCAGTTTCATAGAAAGAGCACATCTGTGGACTTCC
AGATCTTCAAGAACCGAGCAGAAGATGGGCACCTGACTCCAGAGCCCCGGCCTGGTTACCCCAGGGGCAG
AGGGAAGGAGGACACACCTGTGTGGGTTCCGTCTCTCTGGGTTCTGATGTGTAAAGTGTGCCTTGTAATG
TCTAATGGACTTTACAGATAAATGTCTTTTTTTTTTTTAAGATGTATAACTAAAATGGACAATTGTTTACA
AGGCTTAACTAATTTATTTGCTTTTTTAAAACTTGAACTTTCTTGTAATAGCAAAT

Figure 15: Mouse POSH Protein sequence (Public gi: 10946922; SEQ ID NO: 9)

MDESALLDLLECPVCLERLDASAKVLPCQHTFCKRCLLGIVGSRNELRCPECRTLVGSGVDELPSNILLV
RLLDGIKQRPWKPGPGGGGGTTCTNTLRAQGSTVVNCGSKDLQSSQCGQQPRVQAWSPPVRGIPQLPCAK
ALYNYEGKEPGDLKFSKGDTIILRRQVDENWYHGEVSGVHGFFPTNFVQIIKPLPQPPPQCKALYDFEVK
DKEADKDCLPFAKDDVLTVIRRVDENWAEGMLADKIGIFPISYVEFNSAAKQLIEWDKPPVPGVDTAECP
SATAQSTSASKHPDTKKNTRKRHSFTSLTMANKSSQGSQNRHSMEISPPVLISSSNPTAAARISELSGLS
CSAPSQVHISTTGLIVTPPPSSPVTTGPAFTFPSDVPYQAALGSMNPPLPPPPLLAATVLASTPSGATAA
VAAAAAAAAAAGMGPRPVMGSSEQIAHLRPQTRPSVYVAIYPYTPRKEDELELRKGEMFLVFERCQDGWY
KGTSMHTSKIGVFPGNYVAPVTRAVTNASQAKVSMSTAGQASRGVTMVSPSTAGGPTQKPQGNGVAGNPS
VVPTAVVSAAHIQTSPQAKVLLHMSGQMTVNQARNAVRTVAAHSQERPTAAVTPIQVQNAACLGPASVGL
PHHSLASQPLPPMAGPAAHGAAVSISRTNAPMACAAGASLASPNMTSAMLETEPSGRTVTILPGLPTSPE
SAASACGNSSAGKPDKDSKKEKKGLLKLLSGASTKRKPRVSPPASPTLDVELGAGEAPLQGAVGPELPLG
GSHGRVGSCPTDGDGPVAAGTAALAQDAFHRKTSSLDSAVPIAPPPRQACSSLGPVMNEARPVVCERHRV
VVSYPPQSEAELELKEGDIVFVHKKREDGWFKGTLQRNGKTGLFPGSFVENI

Figure 16: Drosophila melanogaster POSH mRNA sequence (public gi:17737480; SEQ ID NO:10)

CATTTGTATCCGCTTGGCCACGAGCTTTGGCTGCACTTGGCAAACTTAATAAATTAAACATTGAATCCTG
CCTATTGCAACGATAATATAATCTGATTTAGTGCATTAAGAACGACAAGTAGCGATTATAATAGTAGATT
TTAGCATTTGAGCTAAATTTATTTCCCAACCGCGTCTTGGGATTGCGTATGCGTGAGCCAGTACCTGCAT
GTGTGTGTGTTTTGGAATGTGGCCCTGCACGAAATTCAAATAGTGACCATCCTTGAGATTTTGCATACTG
GCAAGATGGACGAGCACACGTTAAACGACCTGTTGGAGTGCTCCGTGTGTCTTGAGCGACTGGACACCAC
ATCGAAGGTGCTGCCATGCCAGCACACCTTCTGCCGCAAATGCTTGCAGGACATTGTGGCCAGTCAGCAC
AAGTTGCGATGCCCGGAGTGCCGCATCCTGGTCTCTTGCAAAATTGATGAGCTGCCTCCAAACGTCTTGC
TGATGCGAATCTTAGAAGGCATGAAACAAAATGCAGCAGCTGGCAAAGGAGAAGAAAAGGGAGAGGAGAC
TGAAACACAGCCGGAAAGGGCCAAACCTCAGCCGCCAGCGGAATCAGTGGCCCCGCCTGACAACCAACTA
CTCCAGCTGCAGTCACATCAGCAATCTCATCAGCCGGCTCGTCACAAGCAACGTCGATTTCTACTCCCCC
ACGCCTATGCCCTCTTTGACTTCGCCTCCGGTGAAGCCACCGATCTAAAGTTCAAGAAAGGGGATCTGAT
ACTGATCAAGCATCGCATCGACAACAACTGGTTTGTGGGTCAAGCGAATGGTCAGGAGGGCACATTTCCC
ATCAACTACGTCAAGGTATCGGTTCCGCTGCCCATGCCGCAGTGCATTGCCATGTATGACTTTAAGATGG
GGCCCAACGACGAGGAGGGATGCCTCGAATTTAAGAAAAGCACTGTAATACAGGTAATGCGCCGAGTTGA
TCATAATTGGGCAGAAGGACGAATTGGCCAGACCATCGGAATCTTTCCAATAGCATTCGTTGAGCTGAAT
GCAGCGGCCAAAAAGCTGTTGGACAGCGGGCTACACACCCATCCATTCTGCCATCCACCGAAGCAACAGG
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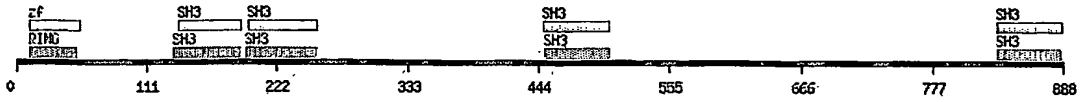
CAATTCCACGCCGGGCAGCAGCAATTCAAGCTCCACATCCAGCTCGAATAACTGCAGTCCGAATCACCAA
ATCTCACTGCCGAATACCCCCCAACATGTAGTAGCTTCCGGATCGGCGTCTGTTCGTTTCCGTGACAAGG
GAGCAAAGGAGAAACGCCACTCACTAAATGCTTTGCTGGGAGGAGGAGCTCCATTAAGTCTGCTGCAGAC
CAACCGCCATTCGGCTGAAATTCTTAGCCTGCCCCATGAACTAAGCCGCTTGGAAGTTTCCAGCTCAACA
GCTCTAAAACCCACGTCAGCCCCACAGACATCGCGTGTACTTAAGACCACTGTTCAGCAGCAGATGCAAC
CGAATTTACCCTGGGGATACTTAGCCCTGTTCCCATACAAACCACGCCAAACGGATGAGCTGGAATTAAA
AAAGGGTTGTGTTTACATTGTGACCGAACGATGTGTGGACGGTTGGTTCAAGGGAAAAAACTGGTTGGAC
ATCACTGGAGTGTTCCCGGGCAACTACCTGACGCCCCTGCGCGCCCGCGACCAGCAGCAGTTAATGCATC
AATGGAAATATGTTCCCCAAAATGCAGACGCCCAGATGGCACAAGTACAGCAGCATCCAGTTGCACCAGA
TGTGCGACTCAACAACATGCTGTCCATGCAACCGCCTGATTTGCCACCTCGTCAGCAGCAGGCTACCGCC
ACGACCACCAGTTGCTCTGTGTGGTCGAAACCAGTGGAGGCGCTGTTCAGCAGAAAATCGGAGCCCAAGC
CTGAAACTGCCACAGCTTCGACTACGAGCAGCAGTTCCTCTGGAGCAGTGGGACTTATGAGGAGATTAAC
TCACATGAAAACACGCTCCAAATCTCCGGGAGCGTCCTTGCAGCAAGTTCCGAAAGAAGCTATTAGCACA
AATGTGGAATTTACAACAAACCCATCAGCTAAATTGCATCCAGTACATGTAAGATCCGGCTCGTGCCCCA
GTCAGCTGCAGCACAGTCAACCGCTCAATGAAACTCCAGCAGCCAAGACAGCGGCACAACAACAGCAGTT
CCTACCCAAGCAGCTGCCTTCCGCTTCTACGAACAGCGTTTCGTACGGATCGCAACGCGTGAAAGGAAGC
AAGGAACGTCCTCACTTGATTTGCGCGAGACAATCATTAGATGCAGCTACATTTCGCAGTATGTACAACA
ATGCCGCGTCGCCGCCGCCACCTACTACTTCCGTGGCCCCAGCTGTCTACGCCGGCGGTCAGCAACAGGT
GATTCCTGGAGGTGGAGCGCAATCCCAGTTGCATGCCAATATGATTATTGCACCCAGCCATCGGAAGTCG
CACAGCCTAGATGCGAGTCATGTGCTGAGTCCCAGCAGCAATATGATCACGGAGGCGGCCATTAAGGCCA
GCGCCACCACTAAGTCTCCTTACTGCACGAGGGAAAGTCGATTCCGCTGCATTGTGCCGTATCCACCAAA
CAGTGACATTGAACTAGAGCTACATTTGGGCGACATTATCTACGTCCAGCGGAAGCAGAAGAACGGCTGG
TATAAGGGCACCCATGCCCGTACCCACAAAACCGGGCTGTTCCCCGCCTCCTTTGTTGAACCGGATTGTT
AGGAAAGTTATGGTTCAAACTAGAATTTATTAAGCGAAATTCCAAATTACTTGTCTAAAAGGATTCAATC
GTCGGTCTATTCGGGCTTCCAAATACGCAATCTCATATTTCTCTTTTCAAAAAAGAAACCGTTTTGTACT
CTTCCAATCGAATGGGCAGCTCGCCGTTGTACTTTTTTATACAATGCTTGATCAAAATAGGCTAGCCATG
TAAGACTTAGGGAACAGTTACTTAAGCCTTAGCGATTAGTTAGCTAGAGAAATAATCTAACCGATCCTTG
TGCCCTCTACAAAGTTATTTGTAATATACGATACTCAGTAATAAAAAAAAAAAAAAAAAAAAAAAAAAA

Figure 17: Drosophila melanogaster POSH protein sequence (public gi:17737481; SEQ ID NO:11)

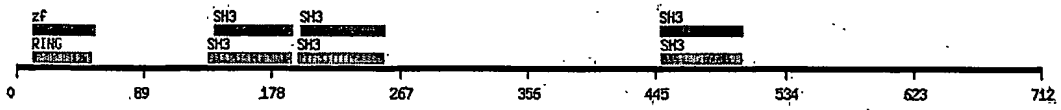
MDEHTLNDLLECSVCLERLDTTSKVLPCQHTFCRKCLQDIVASQHKLRCPECRILVSCKIDELPPNVLLM
RILEGMKQNAAAGKGEEKGEETETQPERAKPQPPAESVAPPDNQLLQLQSHQQSHQPARHKQRRFLLPHA
YALFDFASGEATDLKFKKGDLILIKHRIDNNWFVGQANGQEGTFPINYVKVSVPLPMPQCIAMYDFKMGP
NDEEGCLEFKKSTVIQVMRRVDHNWAEGRIGQTIGIFPIAFVELNAAAKKLLDSGLHTHPFCHPPKQQGQ
RALPPVPVIDPTVVTESSSGSSNSTPGSSNSSSTSSSNNCSPNHQISLPNTPQHVVASGSASVRFRDKGA
KEKRHSLNALLGGGAPLSLLQTNRHSAEILSLPHELSRLEVSSSTALKPTSAPQTSRVLKTTVQQQMQPN
LPWGYLALFPYKPRQTDELELKKGCVYIVTERCVDGWFKGKNWLDITGVFPGNYLTPLRARDQQQLMHQW
KYVPQNADAQMAQVQQHPVAPDVRLNNMLSMQPPDLPPRQQQATATTTSCSVWSKPVEALFSRKSEPKPE
TATASTTSSSSSGAVGLMRRLTHMKTRSKSPGASLQQVPKEAISTNVEFTTNPSAKLHPVHVRSGSCPSQ
LQHSQPLNETPAAKTAAQQQQFLPKQLPSASTNSVSYGSQRVKGSKERPHLICARQSLDAATFRSMYNNA
ASPPPPTTSVAPAVYAGGQQQVIPGGGAQSQLHANMIIAPSHRKSHSLDASHVLSPSSNMITEAAIKASA
TTKSPYCTRESRFRCIVPYPPNSDIELELHLGDIIYVQRKQKNGWYKGTHARTHKTGLFPASFVEPDC

Figure 18: POSH Domain Analysis

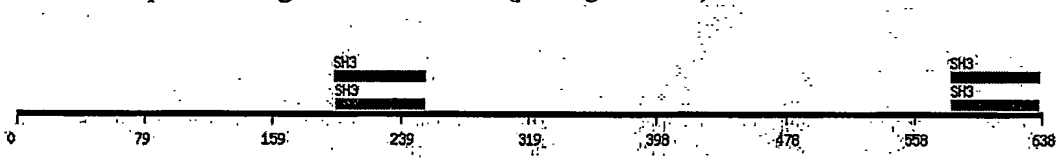
hPOSH protein sequence :



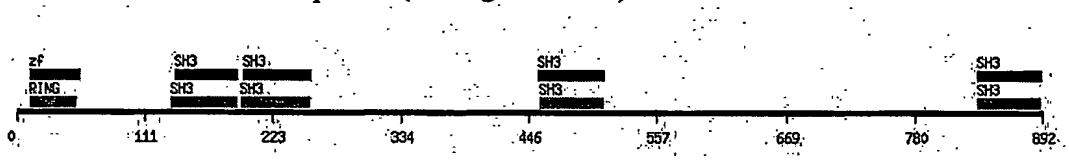

N terminus protein fragment of hPOSH (public gi:10432612):




C terminus protein fragment of hPOSH (public gi:7959249):




Mouse POSH Protein sequence (Public gi: 10946922):




Drosophila melanogaster POSH protein sequence (public gi:17737481)

Figure 19: Human POSH has ubiquitin ligase activity

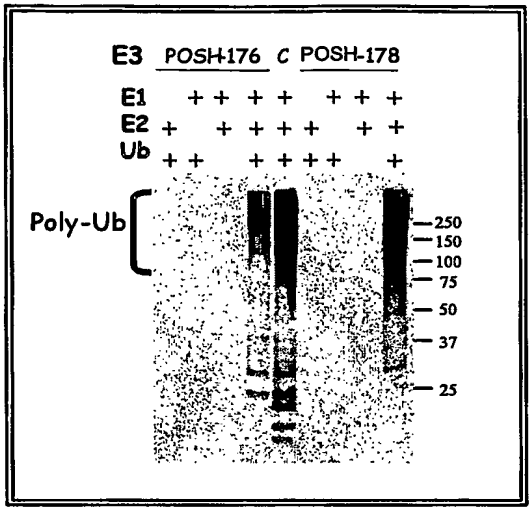


Figure 20. PLD activity in medium of transfected cells

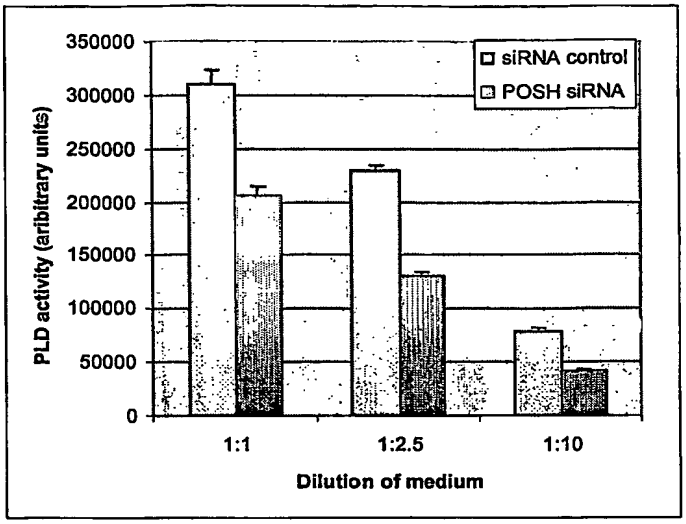
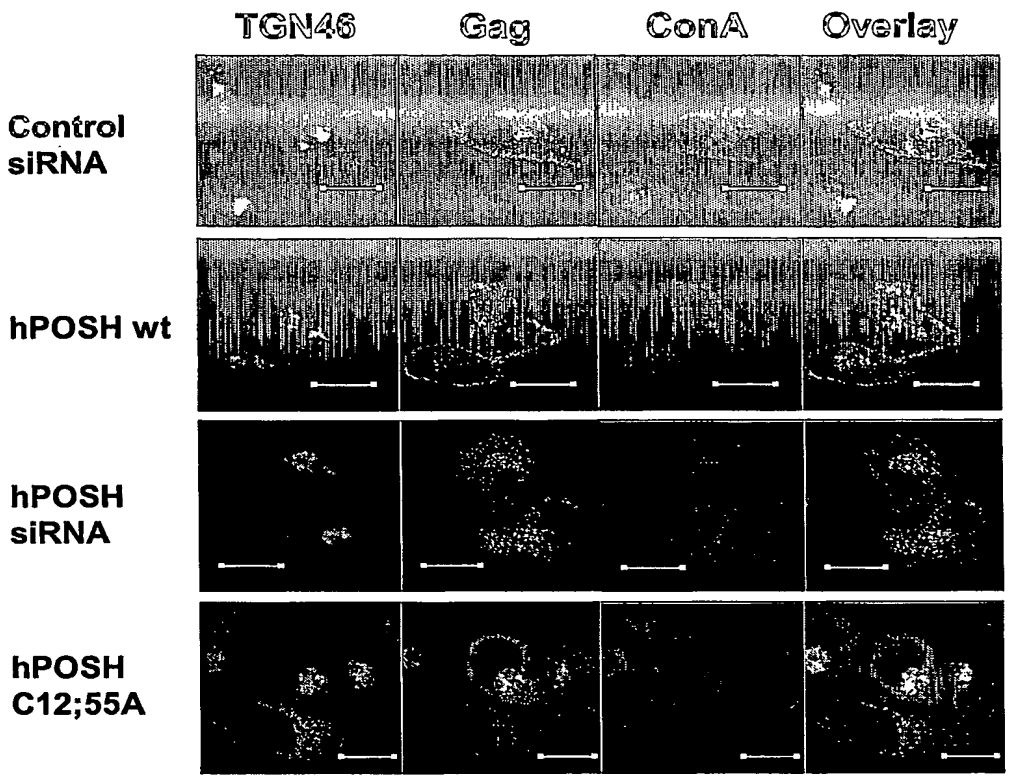


Figure 21.



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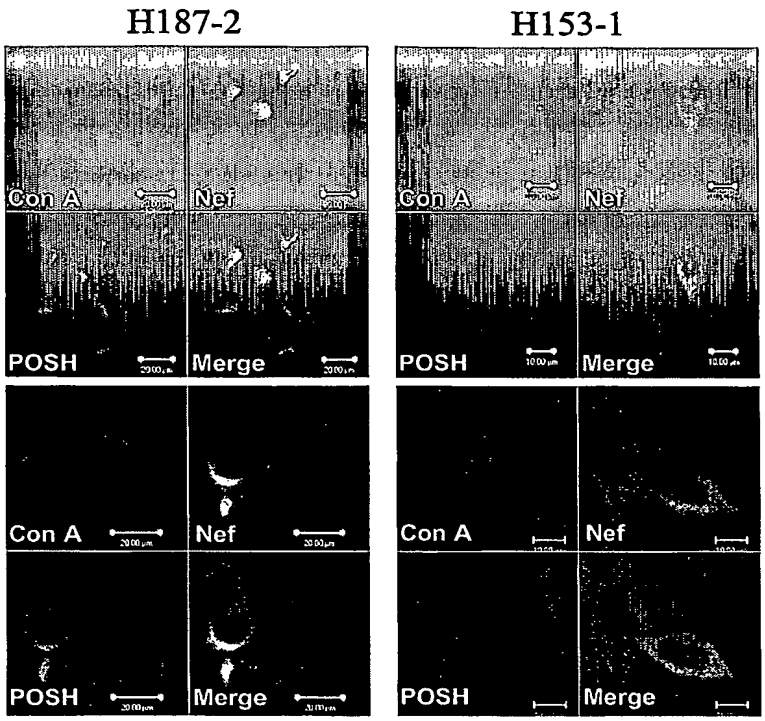


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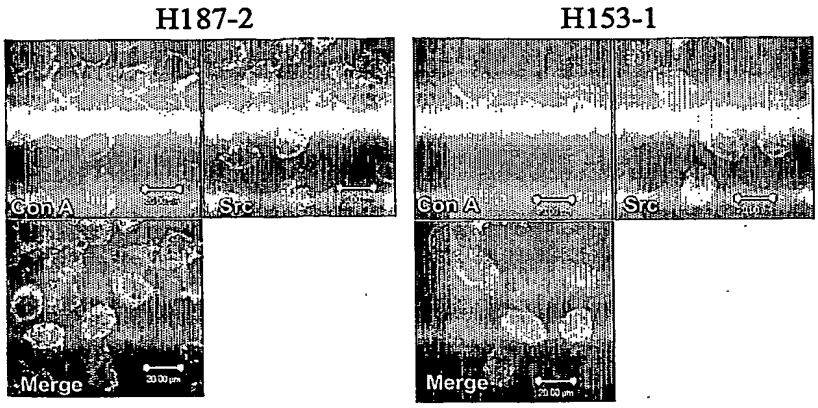
Figure 23.



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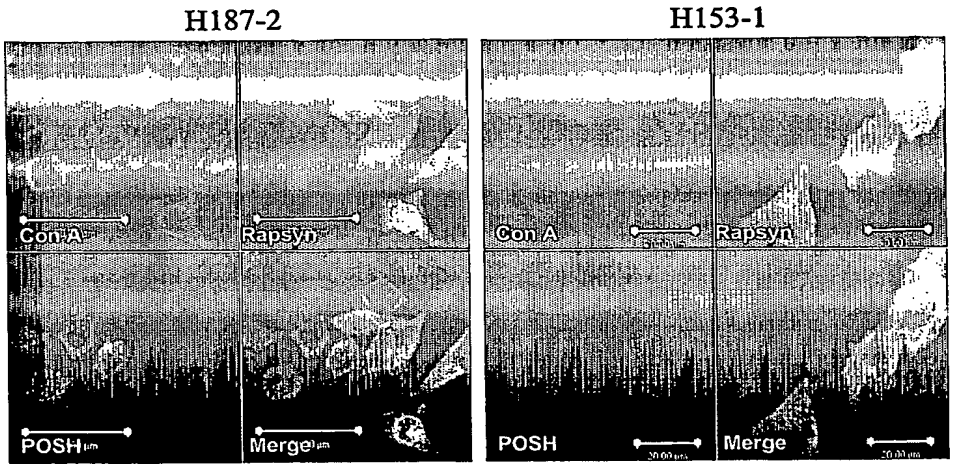

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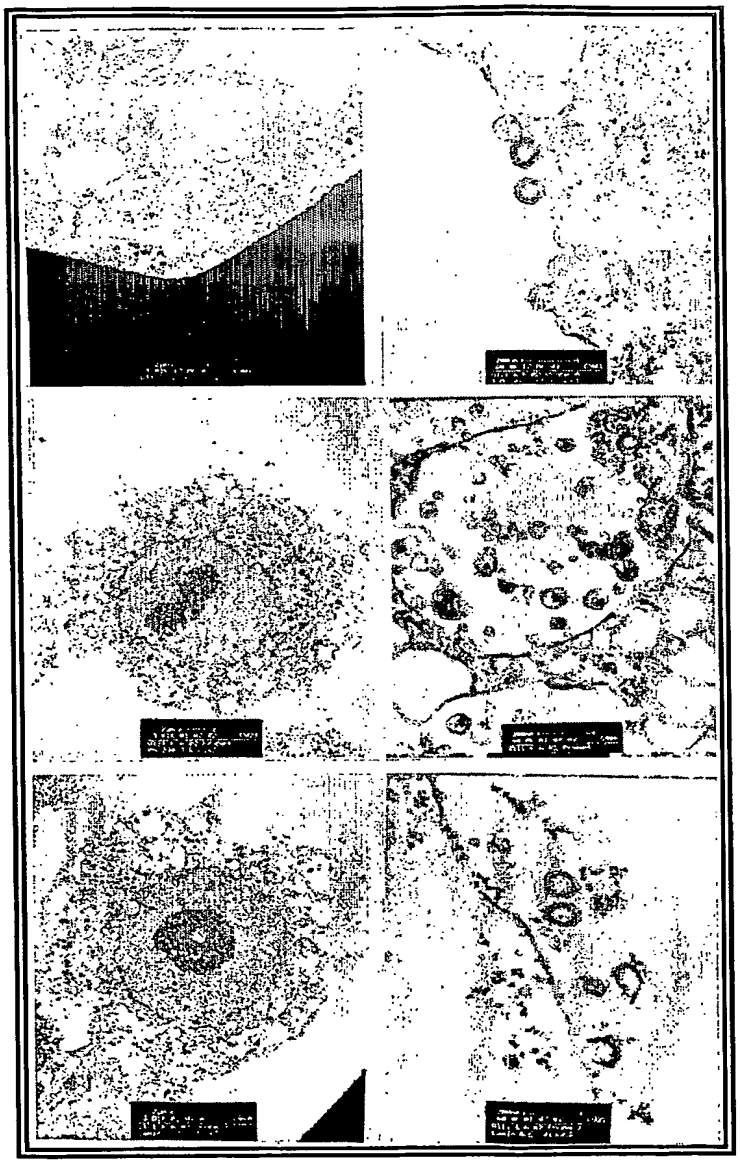


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Figure 26.

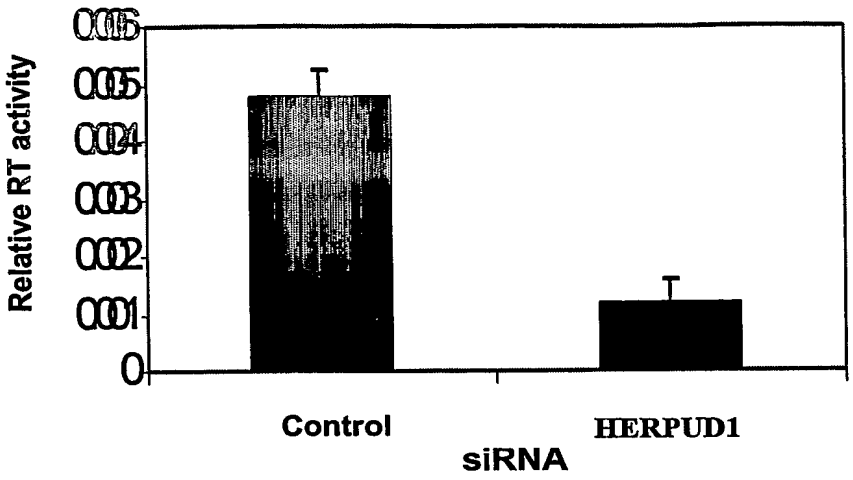




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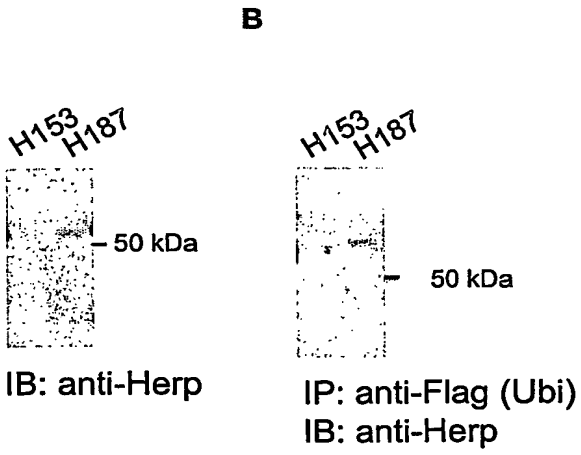
Figure 27.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H187
50 kDa
IB: anti-Herp
H153
H187
50 kDa
IP: anti-Flag (Ubi)
IB: anti-Herp

Figure 28.

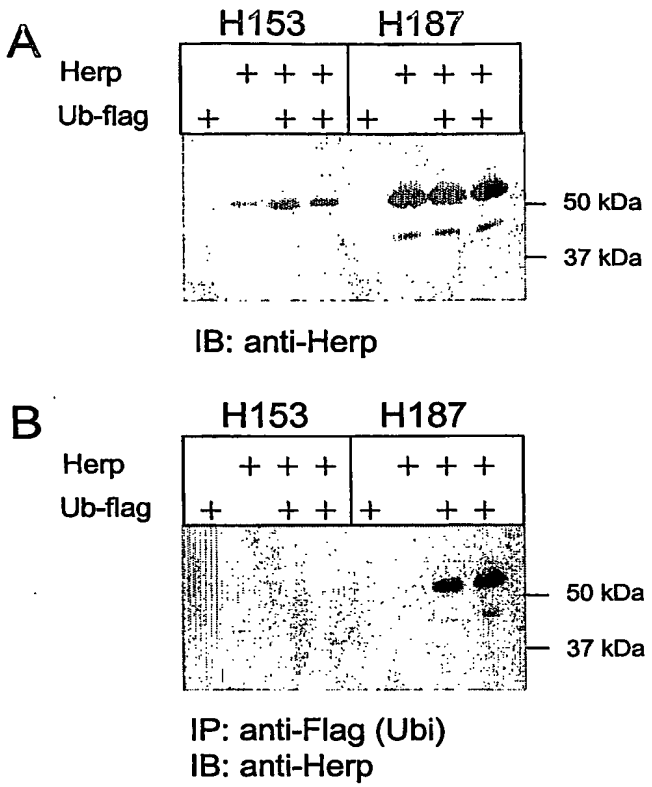
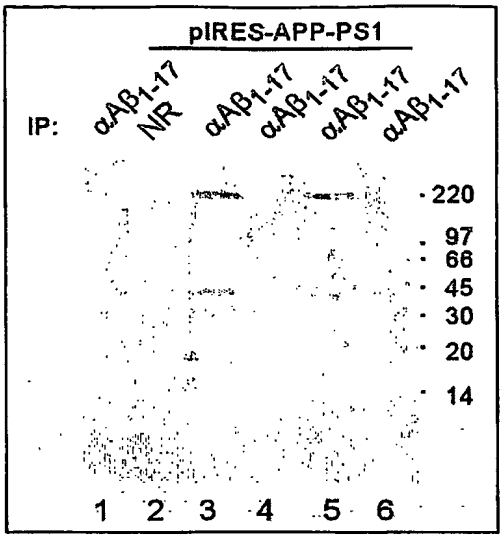

A
H153
H187
Herp
Ub-flag
+ + + + + +
+ + + + + +
50 kDa
37 kDa
IB: anti-Herp
B
H153
H187
Herp
Ub-flag
+ + + + + +
+ + + + + +
50 kDa
37 kDa
IP: anti-Flag (Ubi)
IB: anti-Herp

Figure 29.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αAβ1-17
220
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66
45
30
20
14
1 2 3 4 5 6